Name: _____   Date: _____
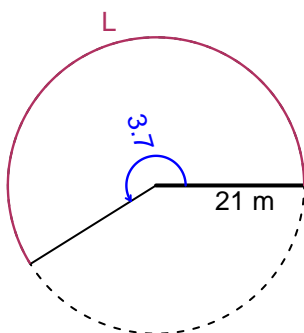
Trig Final (TEST v627)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 21 meters. The angle measure is 3.7 radians. How long is the arc in meters?
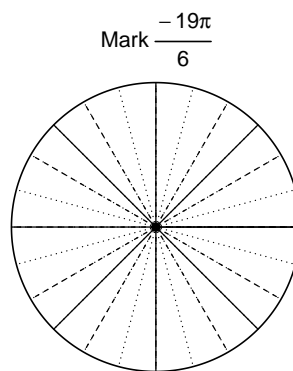

Question 2

Consider angles $\frac{13\pi}{4}$ and $\frac{-19\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\cos\left(\frac{13\pi}{4}\right)$ and $\sin\left(\frac{-19\pi}{6}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{13\pi}{4}$

Find cos(13π/4)

Mark $\dfrac{-19\pi}{6}$

Find sin(−19π/6)

1

Question 3

If $\sin(\theta) = \frac{-35}{37}$, and θ is in quadrant IV, determine an exact value for $\tan(\theta)$.

Question 4

A mass-spring system oscillates vertically with an amplitude of 3.52 meters, a frequency of 4.78 Hz, and a midline at $y = -8.01$ meters. At $t = 0$, the mass is at the midline and moving up. Write an equation to model the height (y in meters) as a function of time (t in seconds).